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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/518,385	12/29/2004	Roberto Lanfredi	262956US0X PCT	8970
22850 7590 03/26/2007 OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314			EXAMINER LISTVOYB, GREGORY	
			ART UNIT	PAPER NUMBER
			1711	
SHORTENED STATUTORY PERIOD OF RESPONSE		NOTIFICATION DATE	DELIVERY MODE	
3 MONTHS		03/26/2007	ELECTRONIC	

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Notice of this Office communication was sent electronically on the above-indicated "Notification Date" and has a shortened statutory period for reply of 3 MONTHS from 03/26/2007.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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<b>Office Action Summary</b>	Application No.	Applicant(s)	
	10/518,385	LANFREDI ET AL.	
	Examiner	Art Unit	
	Gregory Listvoyb	1711	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**.      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>12/29/04</u> . | 6) <input type="checkbox"/> Other: ____.  |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 102/103*

Claims 1, 3 and 5-8 rejected under 35 U.S.C. 102/103 as being unpatentable over Alvares et al (US patent 3991020) herein Alvares as evidenced by Merck Index (Merck and Co, 1996, p.1735) herein Merck.

Alvares discloses beads of expandable vinylaromatic polymers (i.e. polystyrene, abstract) comprising:

a) a matrix obtained by polymerizing 50-100% by weight of one or more vinylaromatic monomers (Examples 1-2)

b) 1-10% by weight, calculated with respect to the polymer (a), of an expanding agent englobed in the polymeric matrix (8 wt % of pentane/isopentane mixture, which boiling point is within the range of 10-100C).

Regarding claim 1 (c) Alvares discloses 0.07% of Zn Stearate. As evidenced by Merck, Zn Stearate contains 13.5-15 wt % of ZnO. Thus, the amount of ZnO in Alvares's composition is around 100 ppm, meeting the limitation (C) of claim 1. It is reasonable to believe that Applicant uses conventional ZnSt.

Regarding Claim 3, average diameters of the particles are within the range 0.1-5 mm.

Regarding claims 5-7, Alvares teaches a suspension polymerization in the presence of suspending agent, initiation system and expanding agent (Examples 1-2) at

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the presence of ethylene-propylene oxide copolymer (column 2, line 55 and Examples 1-2).

Claims 1, 3 and 5-9 rejected under 35 U.S.C. 102/103 as being unpatentable over Ingram et al (US patent 4692472) herein Ingram as evidenced by Merck.

Ingram discloses beads of expandable vinylaromatic polymers (i.e. based on styrene and DVB, Example 1) comprising:

- a) a matrix obtained by polymerizing 50-100% by weight of one or more vinylaromatic monomers (Example 1)
- b) 1-10% by weight, calculated with respect to the polymer (a), of an expanding agent englobed in the polymeric matrix (7 g of pentane/100g polymer)

Regarding claim 1 (c) Ingram discloses 1000 of Zn Stearate (Example 1). As evidenced by Merck, Zn Stearate contains 13.5-15 wt % of ZnO. Thus, the amount of ZnO in Alvares's composition is around 130-150 ppm, meeting the limitation (C) of claim 1. It is reasonable to believe that Applicant uses conventional ZnSt.

Regarding claim 9, Ingram discloses a process of coating the beads with polyoxyethylene sorbitan monolaurate solution and Zn Stearate (containing free fatty acids and ZnO, as evidenced by Merck).

Claims 1, 2 and 5-8 rejected under 35 U.S.C. 102/103 as being unpatentable over Harclerode et al (US patent 5240657) herein Harclerode as evidenced by Merck.

a) a matrix obtained by polymerizing 50-100% by weight of one or more vinylaromatic monomers (Example 1) with molecular weight Mw within the range of 200000-220000 (Column 19, line 52) at the presence of suspending agent, initiating agent and expanding agent (Examples 1 and 2),

b) 1-10% by weight, calculated with respect to the polymer (a), of an expanding agent englobed in the polymeric matrix (3.1% g of pentane, Example 2).

Regarding claim 1 (c) Ingram discloses 0.12% of Zn Stearate (Example 2). As evidenced by Merck, Zn Stearate contains 13.5-15 wt % of ZnO. Thus, the amount of ZnO in Alvares's composition is around 250 ppm, meeting the limitation (C) of claim 1. It is reasonable to believe that Applicant uses conventional ZnSt.

### ***Claim Rejections - 35 USC § 103***

Claims 1 and 4 rejected under 35 U.S.C. 103(a) as being unpatentable over Alvares in combination with Gluck et al (US patent 6384094), herein Gluck.

Alvares discloses a process for the preparation of expandable vinylaromatic polymers for making disposable cups (see discussion above).

Alvares does not teach expanded articles with 0.05-25% of refracting material in a final article.

Gluck teaches an expandable styrene polymer with graphite content from 0.1 to 25%wt. Such polystyrene can be used in heat insulating articles.

It would be obvious to a person with ordinary skills to use graphite in Alvares's process. In allows to increase an applicability range of Alvares's polymers.

Claims 5 and 10 rejected under 35 U.S.C. 103(a) as being unpatentable over Ingram as evidenced by Merck.

Ingram discloses beads of expandable vinylaromatic polymers (i.e. based on styrene and DVB (see discussion above).

Ingram does not teach a particle size range of anti-lumping additive.

It is known that Zn Stearate exists in the form of fine powder (Merck). It would be obvious to a person with ordinary skills in the art to use very fine powder of Zn Stearate (i.e. 0.1-5 um) in order to cover more bead surface at the same weight of the additive.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gregory Listvoyb whose telephone number is (571) 272-6105. The examiner can normally be reached on 9am-6pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James Seidleck can be reached on (571) 272-1078. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Gregory Listvoyb  
Examiner  
Art Unit 1711



James J. Seidleck  
Supervisory Patent Examiner  
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